

Spell Out Your Sister!

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1. Introduction: intermodular argumentation

On the pages below the idea of intermodular argumentation is promoted. The article is a follow-up on Scheer (forth b), where Phase Impenetrability (PIC) was discussed along these lines. The subject matter of the present paper is what is known as the phase edge in current syntactic theory.

The minimalist focus on the interface has afforded a radical change in generative interface architecture. Since the 60s (Chomsky 1965:15ff), the inverted T model stands unchallenged (the generative semantics interlude lain aside): a concatenative device (morpho-syntax) feeds two interpretative devices, PF and LF. This architecture was supplemented with a proviso which requires that all concatenation be done before any interpretation. That is, the morpho-syntactic derivation is completed, and the result (S-structure) is then sent to PF and LF in one go.

An alternative view of the communication between morpho-syntax and LF/PF was formulated in phonology in the early 80s: the backbone of Lexical Phonology (e.g. Kiparsky 1982), so-called interactionism, holds that concatenation and interpretation are intertwined. That is, first some pieces are merged, the result is interpreted, then some more pieces are concatenated, the result is again interpreted and so on.

While GB-syntax of that time hardly produced any echo, generative orthodoxy in phonology reacted on this violation of "all concatenation before all interpretation": Halle & Vergnaud (1987) proposed a non-interactionist version of Lexical Phonology that restores the interface landscape of SPE to a large extent. Halle & Vergnaud (1987) also promote a new idea: selective spell-out. Since cyclic derivation was introduced by Chomsky et al. (1956:75) and formalized in Chomsky & Halle (1968:15ff), interpretation was held to run through the bracketed string (that is inherited from S-structure) from inside out; (roughly¹) every morpheme break defined a cycle. Halle & Vergnaud dispense with this definition of what an interpretational unit is: they propose to grant cyclic status only to a subset of morpho-syntactic divisions. That is, some nodes trigger interpretation, others do not.

The reader will have understood that selective spell-out is exactly what modern (syntactic) phase theory is about: in more familiar terminology, nodes may or may not be phase heads, hence their material may or may not be an interpretational unit. As far as I can see, the phonological heritage is left unmentioned in the syntactic literature since derivation by phase was introduced in Uriagereka (1999) and Chomsky (2000,2001 et passim).

This is also true for interactionism: Uriagereka's multiple spell-out and Chomsky's derivation by phase make the generative interface architecture interactionist, exactly along the lines that Lexical Phonology had laid out: first you do some concatenation, then some interpretation, then some more concatenation etc. For (extra-linguistic) reasons of computational economy regarding the limited availability of active memory, a costly cognitive resource (e.g. Chomsky 2000:101, 2001:15), modern phase theory applies the interactionist world view. Here again, the phonological origin of the idea has

¹ In actual fact, SPE holds that all morphemic and syntactic divisions are cycles, except for sequences of morphemes that instantiate the same major category; these belong to the same cycle (hence [[[theatr]_N ic + al]_A i + ty]_N, Chomsky & Halle 1968:88f).

gone unnoticed as far as I can see (let alone the anti-interactionist reaction of generative orthodoxy in the 80s).

Elsewhere (Scheer forth b) I examine a question that is closely related to selective spell-out and interactionism: critical for current syntactic phase theory is a device which guarantees that previously interpreted strings do not burden further computation – in Chomsky's terms, strings that are returned from interpretation are "frozen" and "forgotten" when concatenation resumes. The history of no look-back devices in generative theory roots in Chomsky's (1973) Conditions on Transformations, and its offspring – until its recent revival in the coat of the Phase Impenetrability Condition (PIC) – was essentially phonological. No look-back devices are designed in order to prevent computation to consider "old" strings. Depending on their precise formulation, however, they have very different empirical effects, which correspond to the thing that the analyst wants the computation to be unable to do. It is shown in Scheer (forth b) (and will also be apparent below) that here as well, Chomsky's PIC has a phonological precedent: unlike all other no look-back devices that the literature has accumulated since 1973, Kaye's (1992,1995) mechanism inhibits the modification of previously interpreted strings – which are thus "frozen".

In contrast to GB where the completed morpho-syntactic derivation was merely dumped into PF and (LF) with a "good bye and don't come back", phase theory establishes a two-way pipe between the morpho-syntactic and the phonological (and semantic) module. Actors on both ends are not free anymore to do what they want: their theories and analyses may make predictions on the other end. The intermodular potential of phase theory, however, has not received much attention thus far. Syntacticians use Phase Impenetrability for syntax-internal purposes, and phase theory evolves at high speed without taking into account what happens when the parcel spends time on the phonological side. On the other hand, phonologists have barely acknowledged the existence of phase theory, let alone taken into account the predictions that it makes on the phonological side.

The argument that is made in Scheer (forth b) builds on the fact that the chunks which are designated by the spell-out mechanism for computation at PF (interpretational units) must be the same on the syntactic and on the phonological side. Also, the phonological and syntactic computation of these identical portions of the string must be restricted by the PIC. A particular syntactic analysis thus makes precise predictions on the phonological side, and vice-versa. A situation where a no look-back device restricts the computation of "old" strings in syntax, but not in phonology, is inconsistent and can be rejected out of hand. Chomsky (2001:12f) is actually explicit on the fact that the economy of active memory concerns phonological as much as syntactic computation ("the phonological component too can 'forget' earlier stages of derivation").

On these grounds, competing phonological analyses of affix class-based phenomena are compared. Since Lexical Phonology, the most popular solution are morpheme-specific phonologies, i.e. distinct computational systems that apply to strings according to their morphological composition (class 1 vs. class 2 affixes). The modern offspring of this approach has been adapted to OT, where it runs under the banners of Stratal OT, DOT, co-phonologies and indexed constraints. Halle & Vergnaud's (1987) aforementioned system that is based on selective spell-out proposes an alternative that works with only one computational system. Kaye (1992,1995) has supplemented this approach with the aforementioned "freezing" no look-back device that is known as the PIC today.

I show in Scheer (forth b) that the PIC and morpheme-specific phonologies do the same labour in the analysis of affix class-based phenomena (they organize underapplication). Therefore no theory can afford to accommodate both: this would be redundant. If syntactic phase theory is on the right track, then, present and past solutions that rely on morpheme-specific phonologies do not qualify: the PIC must exist in phonology.

I submit that intermodular argumentation provides stronger evidence than what can be produced by modular-internal reasoning: it offers the maximal degree of independent assessment that linguists can expect without leaving their discipline. Be it only for that reason, the new interactionist architecture that the minimalist orientation has installed is a good thing to have: after a long period of quasi-silence, syntacticians and phonologists can talk again about things that are unrelated to the weather and to job openings.

On the pages below I examine another possible convergence of the conclusions that phonological and syntactic theory draw from the cyclic character of spell-out. In current syntactic phase theory, the notion of phase edge plays a prominent role: the spell-out of an XP actually only sends the complement to PF/LF in order for material that is trapped in that phase to be able to escape the

freezing PIC by moving to the edge, that is to the head and Spec,XP. It will then be available for further computation, and the positions of the phase edge will only be interpreted at the next higher phase. I show below that exactly the same generalisation has been made in phonology by Kaye (1992,1995), though of course for entirely independent reasons that have got nothing to do with movement. What Kaye (and also Ziková & Scheer 2007, Ziková 2008) do is to require that the sister of an interpretation-triggering affix, rather than its own node (as in other analyses), be spelled out. Syntax and phonology, then, behave in the same way – or rather, syntactic and phonological analysis prompt the need for the same spell-out mechanism whereby the item that is actually spelled out is the sister of the (head of the) phase head.

This convergence of syntactic and phonological evidence regarding the spell-out mechanism makes sense in a phase-based environment since both ends of the interactionist pipe are related by the same device, i.e. the spell-out mechanism. As was mentioned earlier, it is a typical pattern of intermodular argumentation in a phase-based architecture to build on the logical fact that interpretational units – the pieces which are designated for spell-out – must be the same in morpho-syntax and in phonology. Precisely because there is only one spell-out mechanism that manages the intermodular flow of pieces. The argument that is made below, then, uses current syntactic theory as a referee for competing phonological theories: if syntax spells out the sister, phonology cannot spell out the whole XP (or rather: xP). Or else, the syntactic phase edge must be on the wrong track, with all the consequences that this entails, i.e. the impossibility for trapped material of a phase head to escape PIC-petrification.

Finally, a related issue is the aforementioned notion of interpretation-triggering affixes. All phonological theories of the (cyclic) interpretation of morpheme sequences rely on so-called affix classes of the kind that are found in English (class 1 vs. class 2, on which more below). Class membership cannot be predicted and is therefore a lexical property of each affix. Now the phonological behaviour of a morphologically complex string depends on where which type of affix sits – this is an undisputed empirical fact. All theories therefore attribute either *how* (Lexical Phonology: at level 1 or level 2) or *whether* (theories that rely on selective spell-out) interpretation is triggered to the class membership of affixes. In other words, the phasehood of a node is inherited – like category, it is a projection of the lexical material that is dominated. This is what I call piece-driven phase, which is remarkably different from current syntactic phase theory, where phasehood is a property of nodes (labels) – I call this option node-driven phase. The article touches on this issue and a possible convergence in the conclusion. In any event, piece-driven phase is a logical option that is absent from the syntactic debate thus far (though den Dikken 2007 gets close), but which I submit is worthwhile considering.

2. Morpheme-specific phonologies (two engines) and non-selective spell-out

Let us start by introducing the relevant evidence regarding affix class-based phenomena in English. Data and analyses have been extensively discussed in the literature for a long time. I therefore only introduce aspects that are critical for the argumentation.

Affix classes are best studied in English (see Booij 2000:297 for an overview of literature regarding other languages). Their existence was identified in SPE (Chomsky & Halle 1968:84ff); since then, the basic diagnostic for class membership is the behaviour of affixes with respect to stress: they may be stress-shifting (class 1) or stress-neutral (class 2). While the former roughly correspond to the Romance stock of lexical material (e.g. *-ity*, *-ic*, *-ion*, *-ary*, *-al_{adj}*), the latter typically are of Germanic origin (e.g. *-ness*, *-less*, *-hood*, *-ship*, *-ful*). Relevant overview literature includes Giegerich (1999), McMahon (2000) and Bermúdez-Otero (forth).

For example, a root such as *párent* appears with regular penultimate stress when it occurs in isolation; adding the stress-shifting affix *-al* produces *parént-al*, while the stress-neutral item *-hood* yields *párent-hood*. Another way of looking at these facts is that both *párent* and *parént-al* bear transparent penultimate stress, while *párent-hood* illustrates an opaque non-penultimate pattern where stress behaves as if the suffix were not there. In other words, stress has been reassigned when *-al* was added (stress-shifting), but reassignment was blocked upon the merger of *-hood*. The task for the analyst is thus to organize underapplication of the stress rule, which must somehow be prevented from reapplying to strings that are headed by class 2 affixes.

Table (1) below shows the solution that is proposed by Lexical Phonology.

(1) *párent* - *parént-al* vs. *párent-hood* in Lexical Phonology

		parent	parént-al	párent-hood
lexicon		parent	parent	parent
level 1	concatenation	—	parent-al	—
	stress assignment	párent	parént-al	párent
level 2	concatenation	—	—	párent-hood
	rule application	—	—	—

The spine of Lexical Phonology is its stratal architecture: the lexicon contains underived roots, all class 1 affixes are concatenated at stratum 1 (level 1), while class 2 affixes join in at stratum 2 (level 2). After the concatenation is complete at each stratum, a stratum-specific phonology applies to the string as it stands. Rules are assigned to specific strata: in our example, the stress-assigning rule is a level 1 rule, which means that it is active at level 1, but absent from level 2. Another ground rule is that the derivation is strictly serial: given the order lexicon → level 1 → level 2, strings that are present at some level must run through all subsequent levels on their way to the surface. This means that they experience the computation that these levels.

Under (1), then, /parent/ in isolation receives stress at level 1 where stress assignment is active. This is also true for /parent-al/ since *-al* has been concatenated in time. Stress assignment to /parent-hood/, however, concerns only /parent/ since *-hood* has not yet joined in. After its concatenation at level 2, stress does not move since the stress rule is absent from this stratum. Note that this is critical: otherwise **parént-hood* would be produced.

Underapplication of stress assignment at level 2 is thus achieved by the split of phonological computation into two morpheme-specific mini-grammars: one that assesses class 1 strings (where the stress rule is present), another that takes care of class 2 strings (where the stress rule is absent). The set of rules that applies at level 1 is thus necessarily distinct from the set of rules that applies at level 2 – both phonologies specifically apply to a certain class of morphemes.

Morpheme-specific phonologies have been carried over from serial Lexical Phonology into the constraint-based environment of OT, where the two-engine approach falls into two varieties, serial and parallel. On the one hand, Stratal OT (Kiparsky 2000, Bermúdez-Otero forth) and DOT (Rubach 1997 et passim) faithfully continue the stratal architecture of Lexical Phonology: strata are serially ordered, and any string that was present at stratum *n*-1 must run through stratum *n* and all subsequent strata. In OT, differences among mini-grammars (the two engines) are expressed by means of different rankings of the same universal constraint set. Morpheme-specific phonologies therefore incarnate as different constraint rankings. That is, constraints are reranked between strata.

The alternative implementation of the two engine-approach is parallel: class 1-strings are assessed by two distinct computational systems X and Y; the former applies to class 1, the latter to class 2-strings. In contrast to the serial solution, however, class 1-strings never meet class 2 computation, and vice-versa: nothing is serially ordered, and hence strings that are headed by a class-specific affix do not run through other "strata" (there are no strata in this approach) on their way to the surface. There are two competing representatives of this solution, cophonologies (e.g. Inkelas 1998) and indexed constraints (e.g. Pater 2000).

Further detail would lead too far afield. It is enough to bear in mind that all versions of Lexical Phonology, present and past, share two essential properties: phonology is made of two distinct computational systems, and spell-out is non-selective. The latter is a consequence of the former: interpretation occurs upon every concatenation of an affix, only is the string sent to distinct mini-phonologies according to its morphological properties.²

² It was mentioned earlier that the classical take of Lexical Phonology is to spell-out only when two successive morphemes belong to different affix classes ("at the end of every stratum"), rather than at every morpheme break. This option is reminiscent of SPE (see note 1) and empirically indistinguishable from a situation where literally every boundary triggers interpretation (which is what some versions of Lexical Phonology actually practise).

3. Selective spell-out and only one computational system (one engine)

3.1. Halle & Vergnaud (1987): selective spell-out

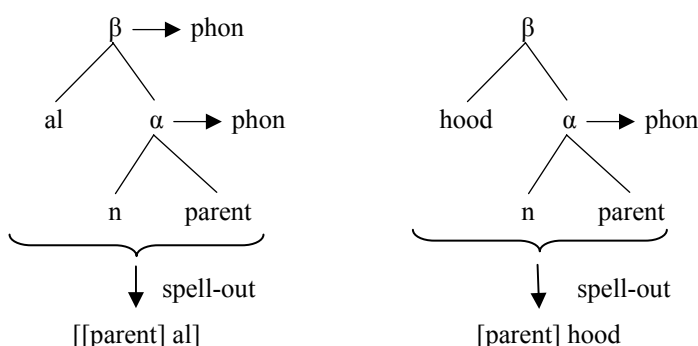
Halle & Vergnaud (1987) have introduced an alternative that works with only one computational system.³ The heart of their mechanism is selective spell-out. The idea has already been introduced in section 1: only some nodes of the morpho-syntactic tree trigger spell-out. Whether or not a node dominates an interpretational unit (i.e., is a phase head or not) is decided by its head: affixes are lexically specified for being interpretation-triggering (cyclic affixes in Halle & Vergnaud's terms) or interpretation-neutral (non-cyclic). This property is then inherited by the node that they project, and the spell-out mechanism does or does not send nodes to PF/LF according to this property.

Under (2a) below, β triggers spell-out because it is projected by the class 1 affix *-al*; by contrast under (2b), the stress-neutral class 2 affix *-hood* does not provoke the interpretation of its node.

(2) Halle & Vergnaud (1987): analysis of affix class-based stress

a. *parént-al*

b. *párent-hood*



An additional proviso is that all roots are interpretational units by themselves (Halle & Vergnaud 1987:78). This is integrated into (2) by the fact that the root node α is always spelled out. The difference between *parént-al* and *párent-hood*, then, is one of cyclic structure: in addition to the root, the former is subject to interpretation as a whole, while the latter is not. The input that enters phonology is thus /[[parent] al]/ vs. /[[parent] hood/.⁴ Penultimate stress assignment then applies to each cycle: while the derivation ends for the latter item when [párent] has received stress (there is no further cycle), it reapplies to [párent al]; that is, stress is shifted to the right, and the result is *parént-al* vs. *párent-hood* ([parent] in isolation of course comes out as *párent*).

This analysis achieves underapplication by selective spell-out: class 2 affixes do not trigger interpretation, which prevents the stress rule from reappling. Two more ingredients, however, make crucial contributions to the result: it was already mentioned that roots are always spelled out by themselves – this is nothing that selective spell-out enforces per se. Also, class 1, rather than class 2 affixes, are interpretation-triggering – this choice is not determined by any property of the theory either.

In sum, then, Halle & Vergnaud achieve the same affix class-based effect as Lexical Phonology (and modern incarnations thereof), but without recurring to morpheme-specific phonologies: there is only one computational system that assesses all strings.⁵

³ Halle & Vergnaud (1987) is a book about stress, not about the interface. The interface theory that it contains has only really emerged in subsequent work: Halle et al. (1991), Halle & Kenstowicz (1991), Odden (1993). Modern offspring includes Halle & Matushansky (2006). I use Halle & Vergnaud (1987) in order to refer to the entire line of thought in recognition of the fact that this book appears to be the first source in print (except an unpublished manuscript of Halle's 1986 which to date I was unable to hunt down).

⁴ Recall that Halle & Vergnaud are anti-interactionist, i.e. need to complete the morpho-syntactic derivation before the full string, augmented with cycle-defining brackets, is sent to PF for interpretation.

⁵ For the sake of completeness, it needs to be mentioned that the single computational system at hand only refers to the contrast with morpheme-specific multiple phonologies. It disregards chunk-specific phonologies, which apply only to a certain *size* of pieces. Chunk-specific phonologies have been proposed for the word level (SPE's

3.2. Kaye (1995): a different implementation of selective spell-out

Kaye (1992,1995) adopts selective spell-out and, like Halle & Vergnaud, rejects morpheme-specific phonologies. The implementation of selective spell-out, however, is significantly different given the "secondary" choices that Kaye makes. A comparison appears under (3) below.⁶

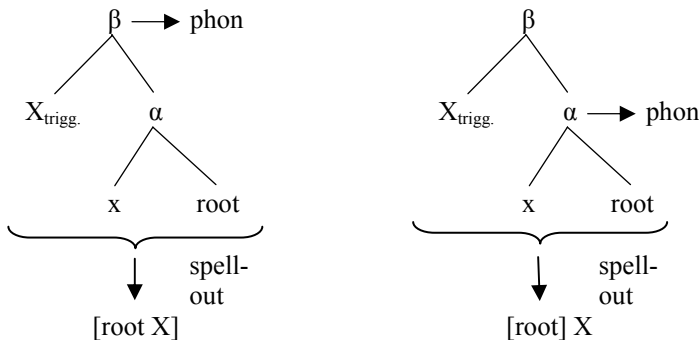
(3) differences between Halle & Vergnaud (1987) and Kaye (1995)

	Halle & Vergnaud	Kaye
a. the root is an interpretational unit	yes	no
b. the word is an interpretational unit	no	yes
c. interpretation-triggering affixes trigger the spell-out of	their own node	their sister
d. type of English affix-class that triggers interpretation	class 1	class 2
e. underapplication is achieved by	cycles	cycles and no look-back

Unlike with Halle & Vergnaud, the root is not an interpretational unit (i.e. a cycle) per se in Kaye's system. By contrast, the word is always an interpretational unit (while, recall, it is not with Halle & Vergnaud: /[parent] hood/). A third contrast is that with Kaye it is class 2 affixes that are interpretation-triggering while, recall, this privilege was granted to class 1 affixes by Halle & Vergnaud. Finally, the critical difference for the global purpose of the article is that the sister of the interpretation-triggering affix, rather than the node that dominates the affix itself, is spelled out in Kaye's system. Table (4) below depicts this difference.

(4) interpretation-triggering affixes: what exactly is spelled out

- a. Halle & Vergnaud (1987): cyclic affixes trigger the spell-out of their own constituent β
- b. Kaye (1995): cyclic affixes trigger the spell-out of their sister α



Given an interpretation-triggering (i.e. cyclic) affix X and a root, two significantly distinct results are produced: / [root X] / vs. / [root] X /. Note that this is only the isolated result of the action of the affix, which needs to be supplemented by the computation-independent provisos (3a,b): the root is always a cycle with Halle & Vergnaud, the word is always an interpretational unit in Kaye's system. This leaves us with identical structures: / [[root] X] / is produced on both sides.

This does not mean, however, that the two different spell-out strategies return identical results. The contrast is shown under (5) below where strings with interpretation-neutral (Y) affixes are

word-level rules, adapted basically in all subsequent theories) and for the contrast between sequences of morphemes and sequences of words (in the familiar vocabulary of Lexical Phonology, the former are lexical, the latter post-lexical rules). Chunk-specific phonologies are a separate issue (see Scheer forth a for further discussion).

⁶ Space restrictions only allow for a digest version of the comparison, and also of the presentation of Kaye's system. Further discussion is provided in Scheer (forth a,b).

opposed to strings with interpretation-triggering (X) affixes.

	Halle & Vergnaud	Kaye
a. root- $X_{\text{triggering}}$	[[root] X]	[[root] X]
b. root- Y_{neutral}	[root] Y	[root Y]

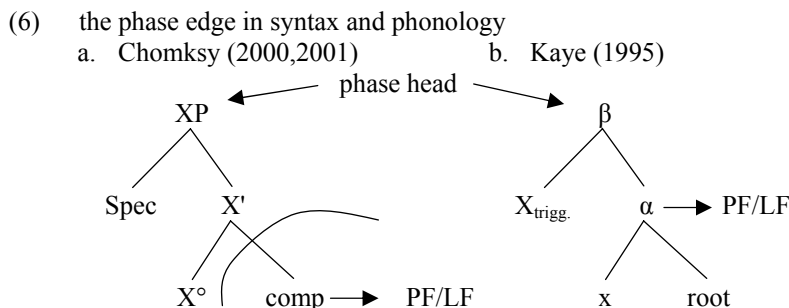
The contrast between Halle & Vergnaud and Kaye thus concerns strings that bear an interpretation-neutral affix, and it is the result of the combined choices under (3a-c). These are hard-wired in the two systems, i.e. independent of the situation in particular languages. By contrast, the analyst must still identify which are the interpretation-triggering and which are the interpretation-neutral affixes in every language studied – interface theory will not help. It was already mentioned in (3d) that Halle & Vergnaud and Kaye make opposite choices for English. Finally, Kaye's analysis of the *párent - parént-al* vs. *párent-hood* pattern crucially relies on an ingredient that is absent from Halle & Vergnaud's system, i.e. a no look-back device – modification-inhibiting no look-back to be precise (see (3e)).

Kaye (1995) holds indeed that previously interpreted strings cannot be modified by computation at later cycles. The striking parallel of Kaye's no look-back and current "freezing" Phase Impenetrability in syntax is the subject matter of Scheer (forth b), where it is argued that the absence of a PIC device disqualifies phonological theories. In Kaye's system, then, *párent* and *parént-al* identify as [parent] and [parent al], respectively, while *párent-hood* comes down to phonology as the complex [[parent] hood]. Application of penultimate stress to the two former produces the correct result right away. The latter first receives penultimate stress on the inner cycle, i.e. [párent], but then Kaye's PIC inhibits modification of this string (and hence stress shift) on the outer cycle. The English situation is further discussed in Scheer (forth b); namely cases where underapplication must be achieved for class 1 strings (level 2 rules in Lexical Phonology, e.g. *sign*, *sign-ing*₂ vs. *si[g]n-ature*₁) are examined.

For the purpose of the present article, however, we have now taken stock of everything we need in order to compare the competing spell-out mechanisms that have been developed on the grounds of phonological effects with their cousin that is based on syntactic evidence.

4. The Phase edge in phonology (or rather: in morphology)

Current syntactic phase theory holds that in case XP is a phase head, the spell-out of XP only triggers the interpretation of the complement; the head and Spec,XP – the edge of the phase – are spelled out only at the next higher phase (Chomsky 2000:108 et passim). Kaye's (1995) version of interpretation-triggering affixes and Chomsky's phase edge are contrasted under (6) below.



Saying that Kaye's way of doing spell-out is the phonological version of the phase edge would be imprecise: it is the result of phonological evidence, but it concerns morphology. That is, where Chomsky's mechanism spells out words and larger chunks, Kaye's evidence is based on the spell-out of morphemes. What the parallel really is about, then, is syntax and morphology: chunks of whatever size seem to be spelled out by the same mechanism. That is, once it is determined that a given node is a phase head, the sister of its head is spelled out. In syntax, this is the complement (i.e. the sister of the head of the phase head XP); in morphology, this is the sister of the interpretation-triggering affix, whose projection is the phase head.

This situation contributes to the ongoing debate whether morphology and syntax are instances of the same computational system or not. Showing that they are is the goal of Distributed Morphology (Embick 2007 for example is on this issue), while Lexical Phonology-affiliated morphological approaches ("autonomous" morphology, e.g. Booij et al. 2007) and syntactically oriented theories such as Ackema & Neeleman's (2005,2007) argue for a distinct morphological device. Julien (2007) and Lieber & Scalise (2007) provide a survey of the issues.

5. Conclusion: one spell-out mechanism and piece-driven vs. node-driven phase

In conclusion, an intermodular argument can be made where syntax referees competing phonological theories. The phase edge is a critical piece for current syntactic theory: derivation by phase, supplemented with "freezing" Phase Impenetrability, cannot work in its absence since it is undisputed that some material of phase heads may continue to be available for further computation. Spelling out the complement of an interpretation-triggering XP is thus a necessary property of the spell-out mechanism. There can be no doubt, however, that there is only one spell-out mechanism⁷ – which therefore must also be responsible for the phonological effects of cyclic derivation. We have come across three competing theories of relevant phonological effects: one where all nodes are spelled out (Lexical Phonology), one where only the node that dominates interpretation-triggering affixes is spelled out (Halle & Vergnaud 1987), and one where only the sister of interpretation-triggering affixes is sent to interpretation (Kaye 1995, and more recently Ziková 2008). If the spell-out mechanism spells out the complement of phase heads – their sister –, the latter is selected, and the two former must be dismissed.

This does not mean, however, that we are done with a uniform spell-out mechanism for syntax and phonology (or rather: morphology), for as it stands, there is still an important hiatus. In current syntactic phase theory, the question what exactly counts as a phase head is at the forefront of the research agenda (den Dikken 2007 and Grohmann 2006 provide an overview). This area is rapidly evolving and has already produced a blooming variety of proposals. One thing that nobody seems to doubt, though, is that phasehood is a property of nodes (i.e. of their labels) – this is what I call node-driven phase. By contrast on the "phonological" side, the label of nodes plays no role at all in the definition of phasehood, which is determined by a lexical property of affixes. In this system, a node inherits phasehood, i.e. becomes a phase head, because the affix that it is the projection of bears a lexical feature that specifies is interpretation-triggering quality. This is what I call piece-driven phase.

There does not seem to be any way in phonology to get around the fact that phasehood is a lexical property of affixes. The only way to envision a unified spell-out system, then, is to explore this option in syntax. This is what this article suggests. A first step in this direction has actually been made by den Dikken's (2007) Phase Extension where phasehood is defined by syntactic computation (rather than given), where the phasehood of heads moves together with the head (if a phase head moves, it will also be a phase head in its new position), and where nodes may inherit phasehood from the material that they dominate (the phasehood of a node may be a projection of its head).

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⁷ Or at least, this is the zero hypothesis. If it turns out that morphology and syntax are two distinct computational systems, it could probably be argued that each system comes with its own spell-out mechanism (but note that this is not a necessary conclusion: two distinct structures may as well be "harvested" by the same mechanism). In this case, the argument is considerably weakened since, as was mentioned, the phonological evidence for the phase edge concerns the spell-out of morphemes, whereas the syntactic evidence for the same device is based on the spell-out of words and larger pieces.

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